

# **COUNTING SEMAPHORES FOR NETWORK PROCESSING ENGINES**

## **ABSTRACT OF THE DISCLOSURE**

Systems and methods are disclosed for implementing software FIFOs on network  
5 processing engines (NPEs). The logic needed to support these software FIFOs is  
believed to be less than that needed to support additional hardware FIFOs, especially as  
the number of additional FIFOs is increased. Thus, the systems and methods enable  
NPEs to utilize more FIFOs at less cost. The counting semaphores that are used in the  
implementation of the software FIFOs can also, or alternatively, be used to provide NPEs  
10 with additional resource-locking and signaling functionality.